[3] *Artificial Cloud-Glow.* For producing the intense diffraction colours of the cloud-glow it is necessary to procure a cloud consisting of small particles all about the same magnitude. This is best attained if the air before entering the globe is first led through hot water. If the conditions are favourable the colours are sufficiently intense as to permit of their being received on a white screen one metre distant. The colours change rapidly in a regular gradation of order, each colour appearing first at the centre of the field, and moving outwards.

Several additional phenomena are to be observed with this apparatus; and its inventor has devised an ingenious proof of the once-disputed point that the particles of mist are spherules, not vesicles. This he does by showing that certain diffraction phenomena which depend on the size of the particles remain unchanged during a sudden change of external pressure, which, if the particles were bubbles or vesicles, would at once cause them to expand.

ILLUMINATION OF MICROSCOPES AND BALANCES

IN measurements and weighings where high scientific accuracy is needed it is sometimes necessary to use artificial means of illumination, and it is found that when reflected light cannot be conveniently introduced, the heat from ordinary lamps causes variations of the temperature of the room, &c., which slightly affect the accuracy of the results to be obtained. By using, however, an incandescent electric lamp fitted inside a glass vessel of water, the light may be even brought near to the microscope or balance without any appreciable interference with temperature. The glass vessel is provided with a pierced cover or shade, and a little stream of water of a uniform temperature may be kept flowing through the vessel.

By means of a "chromozone" battery, supplied by Mr. O. March, it has been found, at the Standards Office, that a light may be maintained at an insignificant cost for fifty hours without, of course, any attention. During a recent comparison made by Mr. Chaney of two standard kilogram weights it became necessary to use the lamp, but the action of the balance was not interfered with by the proximity of the lamp, the probable error of the result being only ± 0·005 mgr.

NOTES

IN an overflowing Convocation at Oxford, on Tuesday, the battle of vivisection was fought out a third time. The victory of sound sense over false sentiment has again been won; and on this occasion the vote is unmistakable. In spite of the most vigorous exertions of the opponents of physiology, the decree to endow the Physiological Laboratory—as the other scientific departments in the University are endowed—has been carried by the large majority of one hundred and sixty-eight. The Dean of Christchurch opened the debate in a moderate speech recommending the grant. He pointed out that the vote was for teaching purposes, and in no way concerned vivisection, for Prof. Burdon Sanderson had given the most complete assurances that he would not use painful experiments on living animals for the purposes of teaching. Canon Liddon opposed the decree on the ground that the Council should have introduced further safeguards against the indiscriminate use of vivisection. He admitted that vivisection was justified in certain cases, and spoke of it as a painful necessity. The Bishop of Oxford denied the moral right of man to inflict pain in order to advance knowledge, and declared vivisection to be degrading to the sensibility and humanity of the operator. The vote was supported by Prof. Dicey and Sir W. Anson, and unintentionally damaged by Dr. Acland. The last speakers were much interrupted by a clamour which prevented their remarks being heard. The announcement of the result—*placets*, 412; *non-placets*, 244—was received with great enthusiasm, both in the arena and in the undergraduates' gallery. It is to be hoped that this decisive vote will put an end to the warfare waged against the teaching of physiology in Oxford.

GEOLOGISTS throughout the world will be interested to learn that Dr. Franz Ritter von Hauer, who for so many years has so admirably guided the progress of the Geological Survey of Austria, has resigned his post as Director of that institution, and has been appointed Intendant of the Imperial-Royal Natural History Museum, Vienna. He carries with him into his new sphere of labour the hearty good wishes of a large circle of friends and well-wishers, who hope that the official duties he must now perform will in no way diminish the service he has rendered to science so long and so usefully.

IT has been proposed that, for the present session, in place of the formal receptions which have hitherto been held, the rooms of the Royal Society should be kept open on certain nights in order that Fellows and their friends may meet together for conversation and for the examination of such objects of interest as may be collected for the occasion. The first of these meetings will take place on Thursday, March 19, from 7.30 p.m. Any one desirous of showing on that evening any experiments, apparatus, or specimens illustrating any inquiry in which he may be engaged, should communicate with the Assistant Secretary, in order that appropriate arrangements may be made.

THE death is announced of the eminent Russian geologist, George Helmersen, at the age of eighty-two. He studied at Dorpat under Engelhardt, whom he accompanied on his scientific journey along the course of the Lower Volga and the Ural. He subsequently took part in Hofmann's and Humboldt's explorations of the Ural region. Having completed his studies, especially in mineralogy, he spent some years, by direction of the Russian Government, in geological travels through Germany, Austria, and Switzerland. In 1835 he joined the body of mining engineers, and was appointed Director of Studies at the Mining Institute in St. Petersburg. During leisure periods he carried out a series of important geological journeys over the Kirghiz Steppe, through Norway and Sweden, the coal districts of Poland and Silesia, the mining districts of Lakes Onega and Peipus, and the bituminous coal region in the governments of Kherson and Kiev. He also thoroughly explored the gold mines at Beresovsk, and traced the course which has been followed in making the Ural Railway. The results of his indefatigable industry have been published in numerous memoirs of the Russian Academy of Sciences and other works.

WE have heard with regret of the untimely death of the eminent Russian naturalist, Mr. N. Severtsoff, which occurred on the evening of January 11, when driving across the Don, in the Government of Voronej, his horses and vehicle breaking through the ice. The coachman managed to extricate Mr. Severtsoff, but the thermometer stood at – 10° Réaumur, and, before he could be taken to a neighbouring village, he was frozen to death. It is a singular coincidence that Prof. Fedchenko, another of the greatest of Central Asian naturalists, who, like Mr. Severtsoff, had so often risked his life in the pursuit of science in Turkestan, was also frozen to death in Europe. Mr. Severtsoff so early as 1867 explored the Thian Shan as far as the sources of the Narin. His work on the vertical and horizontal distribution of Turkestan animals was written in Russian, and he has since published original researches on the birds of the Pamir. Certain portions of his remarks on Turkestan mammals and birds have been translated, and it is chiefly to him that we are indebted for what information we have in English respecting the mammals, birds, and reptiles of

Turkestan. We are glad to see, however, from Messrs. Sampson Low's catalogue the announcement of a book by Dr. Lansdell, on Russian Central Asia, in which are promised the enumeration of 4600 species of fauna and flora, in about 20 lists, with introductions to each.

PROF. SILVANUS P. THOMPSON, of University College, Bristol, has been appointed Principal and Professor of Physics at the Finsbury Technical College. The duties of Principal have hitherto been discharged by Mr. Philip Magnus, the Director and Secretary of the Institute, who temporarily undertook them pending the complete organisation of the College. As Professor of Physics at Finsbury Prof. Thompson succeeds Prof. Ayrton, F.R.S., who has now been appointed Professor of Physics at the Central Institution.

THE gift to the nation by Messrs. Osbert Salvin, F.R.S., and F. Du Cane Godman, F.R.S., of two valuable and highly instructive collections, is announced. One collection, presented on certain conditions, comprises the entire series of American birds brought together by those gentlemen, numbering upwards of 20,000 specimens, and illustrating more than any other collection in existence the life-history and geographical distribution of the birds of tropical America. No labour or expense has been spared in the formation of this splendid group of ornithological rarities. The other gift, which is unconditional, comprises a very fine collection of Central American Coleoptera of the families of *Cicindelidæ* and *Carabidæ*. It contains 969 species, and, moreover, 7678 examples, of which more than 400 are types of new species described in the work entitled "Biologia Centrali American," now in course of publication by Messrs. Salvin and Godman. To this collection will be ultimately added, by gift, the remaining families of Coleoptera, with other entomological specimens.

PROF. JEFFREY BELL has succeeded the late Mr. E. C. Rye in the editorship of the *Zoological Record*.

THE French Minister of Education has appointed a Commission, composed of astronomers and others, to report on the opportuneness of extending the decimal system to astronomical distances and time.

M. WOLF having received a sum of money from M. Worms, of Romilly, for the purpose, will begin at the Observatory of Paris a series of experiments for redetermining the velocity of light.

A COMMITTEE has been formed for organising the celebration of the centenary of the birth of Arago, who was born in Perpignan on March 17, 1786. The younger brother of Arago, M. Etienne, is director of the Luxembourg Museum.

MR. H. L. BIXBY, of Chelsea, Vt., U.S., is taking steps, *Science* states, to introduce a system of weather warnings throughout his State by means of blasts from factory whistles. The signals are as follows: after the first long, unbroken blast, usually given at about 7 a.m., a single five-second blast indicates fair or probably fair weather for the day; two blasts, foul weather; three, fair, changing to foul; four, foul, changing to fair; five, doubtful or irregularly variable. After any of these, five short blasts signify a cold wave or unseasonable frosts. The managers of the *Free Press* at Burlington undertake to send the necessary telegrams on payment of a small fee. Randolph is the first town to adopt the system: the signals are regularly given there now from a 10-inch steam-whistle.

AN experiment is being tried in the Jefferson physical laboratory, we learn from *Science*, which promises to be successful. An ordinary seconds clock, with a wooden pendulum, is controlled by the signals from the Harvard College Observatory, with no other mechanism than a fine spring connecting the pendulum to the armature of a telegraph instrument in the circuit. If the signals are interrupted during the day or night, the error of the clock, which seldom exceeds half a second in that time, will generally be rectified within an hour of their recurrence. The rate is in no way affected by the irregular signals caused in storms by the interference of the wires, and the regular impulses conveyed at intervals of two seconds increase but slightly the swing of the pendulum. The attachment can easily be made to any seconds clock at the cost of a few dollars, and may be of interest to those intolerant of the rates charged by companies for the use of electric dials.

FROM an article in the *Boston Journal* of February 7 we see that preparations are being made in the United States to observe the partial eclipse which will be visible there on March 16. Nearly 11/12ths of the sun's surface will be obscured at Washington, Baltimore, Philadelphia, New York, Boston, and Portland.

THE University of Glasgow having accepted the resignation of Dr. Bayley Balfour, the Chair of Botany in that University is now vacant. The patronage belongs to the Crown.

A PARLIAMENTARY paper published during the week (Corea, No. 1) contains, besides the trade report for Corea in the usual form, the account of a journey made by the Consul-General of Great Britain in the Peninsula. As for trade, the reports may be summed up much like the chapter on the snakes of Ireland: there is no trade, and there is no probability of there being any. The journey was from Seoul, the capital, to Songdo, to the north-east, the ancient capital of one of the three kingdoms into which Corea was divided. Some interesting information is given with regard to the production of the famous drug ginseng, so prized as a tonic by the Chinese. It is grown from a seed which is sown in March. The seedlings are planted out in beds raised a foot above the level of the surrounding soil, bordered with upright slates, and covered in from sun and rain by sheds of reeds, well closed in except towards the north side, where they are left to open. In the first or second year the ginseng plant is only two or three inches high, and has only two leaves. It is transplanted frequently during this period. In the fourth year the stem is about six inches high, with four horizontal leaves standing out from it at right angles, and in the fifth year a strong healthy plant has reached maturity, though it is more usual not to take it up until it has reached the sixth season. Ordinary ginseng is prepared by simply drying the root in the sun, or over a charcoal fire. To make red or clarified ginseng, the root is placed in wicker baskets, which are put in a large earthenware vessel with a closely-fitting cover, and pierced as the bottom with holes. It is then placed over boiling water and steamed for about four hours. Ginseng was for centuries regarded as a very elixir of life all over the East; and especially in China and Japan. Its properties were supposed to be miraculous, but they were generally supposed to be confined to the Corean ginseng. But its enormous price put it out of the reach of the poorer classes. The wild ginseng of Corea has frequently fetched twenty times its weight in silver in China. The export from Corea is a strict monopoly, which affords a considerable revenue, and is said to be the king's personal perquisite. Death is the punishment for smuggling it out of the country. The total export is only about 27,000 pounds avoirdupois.

ON February 8 died, near Hamburg, Johann Cæsar Godeffroy, until lately head of the great German firm of traders to the South Sea Islands. He was, however, much more than a merchant. Besides captains and supercargoes, he sent to Micronesia, Melanesia, Polynesia, and especially to Samoa, men of science, whose duty it was to make collections and send them to

Hamburg, to form there an exhaustive museum of natural history. The first whom he sent out on a mission of this kind was Dr. Graefe, of Zurich, now inspector of the zoological station at Trieste, who went to Samoa in 1861, and from this as a centre visited the Fiji, Tonga, and other groups in the region. He returned to Europe after eleven years, bringing with him important collections, and he undertook the editorship of a "Journal of the Godeffroy Museum." Amongst others thus despatched to the South Seas was a lady who spent ten years studying the botany of Northern Queensland, and a Polish surgeon, who lived for five years in the Marshall and Caroline Islands, then returned to Europe; returning again to the Carolines, where he is at present. A list of the men employed by Herr Godeffroy to travel in the South Seas to study the various islands, make collections for his museum, and report to him would embrace all nationalities, all departments of study, and every portion of the Southern Pacific. Eight catalogues of the Museum were published between 1864 and 1881, several of them containing zoological and geographical monographs as well. The *Journal*, which commenced in 1871, contained not only papers on the Museum and its contents, but was open to the discussion of any scientific subject connected with the South Sea Islands. Its most important feature was formed by the papers by specialists on sections of the collections sent home for the Museum. Fourteen parts were published in all, the most remarkable being on the fishes, which contained 140 plates and 312 illustrations. Through financial reverses this princely merchant died poor, and no purchaser was found for his museum, which will probably be broken up.

ACCORDING to a writer in the *North China Herald* on Chinese worship, it is certain that a great amount of fetichism prevails in that country. Near Peking, a few miles from the walls, on the east, is an enormous tree which fell more than two centuries ago, and which has been there ever since. It is called the Divine tree, and a temple has been erected for its worship. The people believe that a spirit lives in or near the tree, and should be worshipped from motives of prudence. The immense size of the tree is the result of the spirit's energy. It is believed it could not have grown so large without a present divinity. At Hantan, five or six days south from Peking, there are some iron bars in a well. In times of drought they are taken all the way to Peking to be prayed to for rain. They are placed in one temple after another, and prayers are offered to them till the showers fall. The bars are then reverently escorted back to Hantan, and placed in the well till they are again needed. In such a case the Chinese believe that there is a powerful spirit or genius in the well and in the bars, and that this spirit accompanies the bars to Peking and back again. This is Chinese contemporary fetichism, but in the ancient books there is no trace of fetichism. The objects of worship were either individual spirits or parts of nature. The ruling powers of the universe, from the highest to the lowest, were divided into four great classes—God, the subordinate heavenly powers, the higher earthly powers, and the numberless spirits that people earth and air. The subordinate heavenly powers were the seasons, the sun, moon, stars, cold and heat, floods and drought. The earthly powers were the gods of the mountains and rivers, and the last named are the spirits still remaining. Nothing is said of human spirits, though these were worshipped, then, as now, in the ancestral temples. But the worship in this instance consisted only of kneeling, prayer, and offerings.

DURING the late Health Exhibition at South Kensington the building and grounds were overrun with rats, food being plentiful and access to it comparatively easy. When the Exhibition closed, however, this ample source of provisions ceased to exist, and starvation seized upon the hosts of rodents who had for six months increased and multiplied upon the fat of the land. For a long time they were to be observed scampering here and there for food with abnormal temerity, often fighting fiercely over fragments of refuse, which evidenced their extreme voracity; and the officials on duty in the building have stated that the rats abounded in such large numbers that the noise of their movements resembled the "sound of wind." By degrees, however, they disappeared, some dying of starvation, whilst the majority emigrated to the houses in the neighbourhood; and at the present time there is scarcely one in the building.

IN connection with the Italian occupation of Massowah, materials for a meteorological station are being sent to that place.

IN the report of the Berlin Physiological Society for February 26 (NATURE, vol. xxxi. p. 404) the name of Dr. Kossel appears as Dr. Rossel.

IN the corrections in Sir William Thomson's Baltimore lecture given in last week's NATURE (p. 407), that for p. 296 should be π and π instead of $\bar{\omega}$ and $\bar{\omega}$. Sir William Thomson also asks us to state that in his Bangor address (p. 410, 2nd col. line 12 from bottom) he has inadvertently given the date of his coming to Glasgow as 1845 instead of 1846.

THE additions to the Zoological Society's Gardens during the past week include a Dwarf Common Ass (*Equus asinus* ♂) from Tripoli, presented by Mr. J. Skelding; a Bonnet Monkey (*Macacus sinicus* ♂), a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mrs. M. Strachan Carnegie; an Alexandrine Parrakeet (*Palæornis alexandri* ♂) from India, presented by Mrs. Abbott; two Common Gulls (*Larus canus*), two Black-headed Gulls (*Larus ridibundus*), British, presented by Mr. F. S. Mosely, F.Z.S.; a Roan Kangaroo (*Macropus erubescens* ♀) from South Australia, three Coal Tits (*Parus ater*), British, purchased.

OUR ASTRONOMICAL COLUMN

VARIABLE STARS.—Prof. Schönfeld, in the notes to his second catalogue of variable stars, which was published in 1875, refers to the singular circumstance that R Serpentis had not been observed at its minimum, though he doubted if it descended below the twelfth magnitude. Considering that the variability of this star was detected by Harding in 1826, the want of satisfactory determinations of the times of minima might hardly have been expected; it does not appear that our knowledge in this direction has advanced during the last ten years. Schönfeld's formula assigns for dates of maxima January 27, 1885, and January 19, 1886; the middle date is July 25, somewhere about which we may look for a minimum, though it is to be remarked that the increase of light has been observed to be more rapid than the decrease, especially near maximum. Observations made during the approaching summer, and continued as long as practicable, may perhaps lead to a well-determined minimum being put on record. The position of R Serpentis for the commencement of the present year is in right ascension 15h. 45m. 23·6s., declination $+15^\circ\ 29'\ 3''$.

A star in R.A. 14h. 8m. 0s., decl. $-11^\circ\ 15'{\cdot}2$ for 1885·0 is probably variable from at least 7·5m. to 10m. On April 18, 1854, it was estimated a tenth magnitude, at a subsequent date 8·5, and on March 18, 1874, it was as bright as 7·5. It is not in Lalande, Bessel, Santini, Lamont, nor in the Bonn Observations, vol. vi. It is entered on Harding's Atlas as a seventh magnitude.

THE OCCULTATION OF ALDEBARAN ON MARCH 21.—The disappearance of Aldebaran at its next occultation by the moon takes place while the star is yet above the horizon at Greenwich, but its altitude there will be less than $2\frac{1}{2}^\circ$. At Exeter the star disappears at 11h. 45m. 19s., Greenwich time, at an altitude of $4\frac{1}{2}^\circ$, so that there is a possibility of observations in the west of England.

THE NAVAL OBSERVATORY, WASHINGTON.—In accordance with an intention notified several months since, Commodore